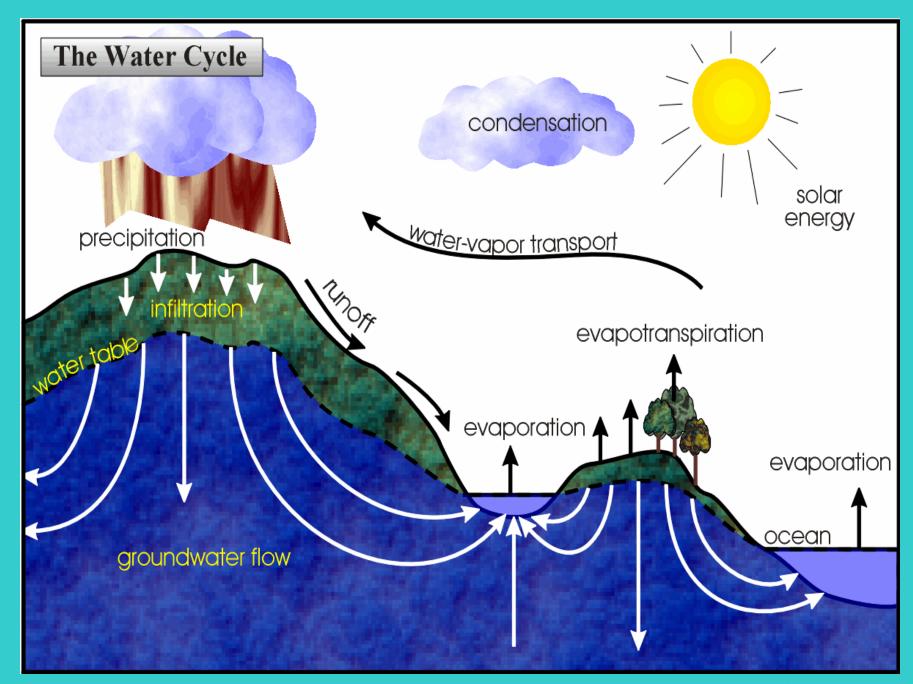
Groundwater Concepts

- Importance of Groundwater
- The Water Cycle
- Groundwater Occurrence
- Aquifers
- Groundwater Contamination

Importance of Groundwater

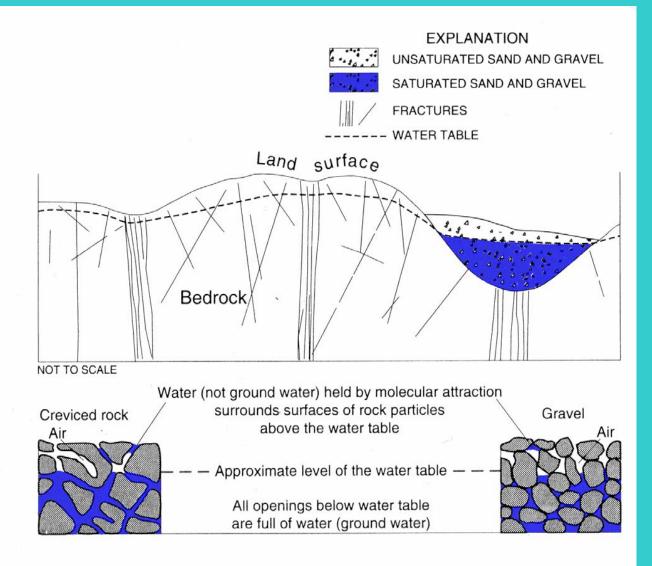
- Critical natural and economic resource.
- 60% of NH residents use for drinking water.
- Of 2,148 public water systems, 98% rely on groundwater.
- 39% of residents use for private systems.
- In 1995, of 82 MGD withdrawn in NH, 31 MGD for public systems, 31 MGD for private domestic use, remaining 20 MGD for commercial, industrial, and agriculture.
- Provides about 40% of the total flow in NH rivers.



Groundwater Occurrence

- NH landscape forged by volcanic eruptions, crust movement, rivers, and glaciers.
- Glaciers receded 10,000 14,000 years ago.
- Glacial deposits- sorted and layered sand and gravel (stratified-drift), and unsorted clay, silt, sand, gravel, and boulders (till).
- Bedrock- primarily granitic rock type.

Typically 50'-100' of sand and gravel in valleys; 0'-50' of till at higher elevations.



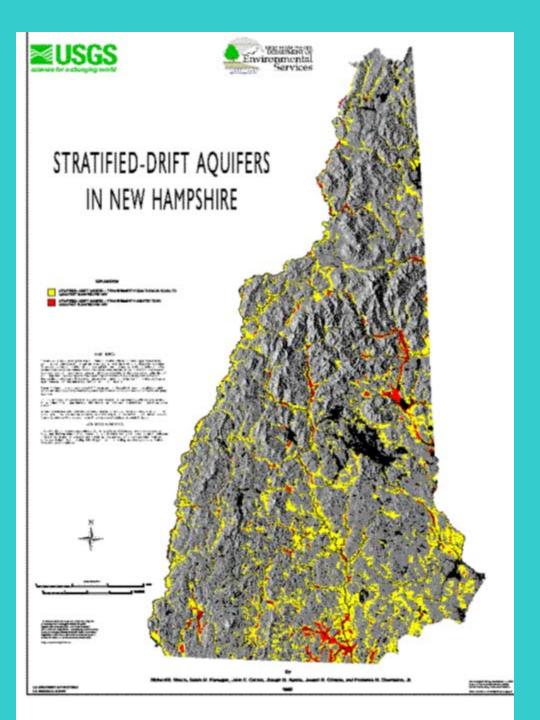
Hydrogeologic section showing ground water in bedrock and sand and gravel in New Hampshire.

Aquifers

- Almost anywhere in NH it is possible to site a well with a yield to supply a home.
- 85% of private wells tap bedrock aquifers, most high-yielding public water supply wells tap stratified-drift aquifers.
- Of registered withdrawals, 28 MGD from stratified-drift, 1.9 MGD from bedrock.

Stratified-drift aquifers cover about 14% of the state, mostly in central and southern NH.

Most urban centers and commercial/industrial development occupy areas of stratified-drift aquifers so future water supply development may be limited.



Groundwater Contamination

- Arsenic: 3% of wells (primarily bedrock), exceed 0.05 mg/L standard. 13% projected to exceed new standard of 0.01 mg/L.
- Radon: 38% of wells (primarily bedrock) exceed 4000 pCi/L. 94% of wells (primarily bedrock) exceed 300 pCi/L.
- Volatile organic compounds detected in 5% of groundwater samples.

Groundwater Contamination

- Estimated \$350 \$400 million to cleanup 18 Superfund sites in NH.
- State spent about \$45 million to cleanup 883 leaking UST sites since 1990.
- Private sector spent about \$5 \$10 million to cleanup contaminated groundwater.
- NHDOT spent about \$2.8 million since 1983 to replace 397 wells contaminated with road salt.

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